



1D Seismic reflection technique to increase depth information in surface seismic investigations

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1D seismic methods, such as MASW Re.Mi. and HVSr, have been extensively used in engineering investigations, bedrock research, V_s profile and to some extent for hydrologic applications, during the past 20 years. Recent advances in equipment, sound sources and computer interpretation techniques, make 1D seismic methods highly effective in shallow subsoil modeling. Classical 1D seismic surveys allows economical collection of subsurface data however they fail to return accurate information for depths greater than 50 meters. Using a particular acquisition technique it is possible to collect data that can be quickly processed through reflection technique in order to obtain more accurate velocity information in depth. Furthermore, data processing returns a narrow stratigraphic section, alongside the 1D velocity model, where lithological boundaries are represented. This work will show how collect a single-CMP to determine: (1) depth of bedrock; (2) gravel layers in clayey domains; (3) accurate V_s profile. Seismic traces was processed by means a new software developed in collaboration with SARA electronics instruments S.r.l company, Perugia - ITALY. This software has the great advantage of being able to be used directly in the field in order to reduce the times elapsing between acquisition and processing.